

STATEMENT OF LEGAL AND FACTUAL BASIS

Transcontinental Gas Pipe Line Corporation
Compressor Station No. 170
Off State Rt. 691 near Appomattox, Virginia in Appomattox County
Permit No. (SCRO) 30863

The Department has prepared a draft State Operating Permit for Transcontinental Gas Pipe Line Corporation's Compressor Station No. 170 for a State Implementation Plan (SIP) Revision to make the limitations of the Phase II of the EPA's NO_x SIP Call State and Federally enforceable.

Engineer/Permit Contact: _____
Dave Skelly
(434) 582-5120

Date: date

Air Permit Manager: _____
David J. Brown

Date: date

Regional Director: _____
T. L. Henderson

Date: date

I. FACILITY INFORMATION

Permittee

Transcontinental Gas Pipe Line Corporation
P. O. Box 1396
Houston, TX 77251-1396

Facility

Compressor Station No. 170
Off State Rt. 691, near Appomattox, Virginia
in Appomattox County

State/County/Plant ID No.: 51-011-00011

II. SOURCE DESCRIPTION

Transcontinental Gas Pipe Line Corporation (Transco) is an interstate natural gas transmission company. Transco's compressor stations are used to compress and move the gas along the system. Compression is made possible through the application of natural gas-fired, internal combustion, reciprocating compressor engines. Compressor Station #170 is located off State Rt. 691 near Appomattox, VA in Appomattox County.

The facility is a Title V major source of NO_x, CO, VOC, and hazardous air pollutant (HAP) emissions, and is covered by the Title V permit effective January 12, 2004. This source is located in an attainment area for all pollutants and is a PSD major source for NO_x, CO, and VOCs. Transco's Compressor Station No. 170 was constructed in the early 1950s and is currently subject to the provisions of Chapter 40 of 9 VAC 5 and 40 CFR 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT). The facility was inspected on August 27, 2004, and was deemed to be in compliance to the Title V permit.

III. Emission Unit(s) / Process Description(s)

Compressor Station No. 170 is a remotely operated natural gas transmission facility (compressor station) that consists of twelve (12) 2-cycle, spark-ignited, lean burn, (2SLB) IC reciprocating engines (RICE), which include the following: five (5) 2SLB RICE Cooper-Bessemer GMW-10 (Ref. M/L 1-5), each rated at 18.0 Million BTU/Hr (2,500 HP power output), which were installed prior to 1972; two (2) 2SLB RICE Cooper-Bessemer GWA-10 (Ref. M/L 6, 7), which were installed prior to 1972, each rated at 18.4 MM BTU/Hr (2,625 HP power output), one (1) 2SLB RICE Cooper-Bessemer GMWC-10 (Ref. M/L 8), which was installed prior to 1972, rated at 23.5 Million BTU/Hr (3,400 HP power output); two (2) 2SLB RICE Cooper-Bessemer 10V-250 (Ref. M/L 9, 10), which were installed prior to 1972, each rated at 23.3 Million BTU/Hr (3,400 HP power output); one (1) 2SLB RICE Cooper-Bessemer 16V-250 (Ref. M/L 11), which was installed prior to 1972, rated at 37.7 Million BTU/Hr (5,500 HP power output); and one (1) 4SLB RICE Caterpillar G3306

engine-powered air compressor (Ref. A/C 1), which was installed in 2000, rated at 1.1 Million Btu/hr (145 HP).

Transco has decided to meet the 82% NO_x reduction mandated by EPA's NO_x SIP Call Phase II Regulation NO_x emissions for large spark ignited, reciprocating, internal combustion engines (SRICE) at Compressor Station #170, the five (5) GMW-10 (Ref. M/L 1-5) engines, two (2) GMWA-10 (Ref. M/L 6, 7) engines, one (1) GMWC-10 (Ref. M/L 8) engine, two (2) 10V-250 (Ref. M/L 9, 10) engines, and one (1) 16V-250 (Ref. M/L 11) engine by adding high pressure fuel injection (HPFiTM), which also may involve one or more of the following: changes to the piston crown and cylinder heads, improved turbochargers and intercoolers, instrumentation, and control systems. The Caterpillar G3306 SRICE (Ref. A/C 1) is not classified as "large" engine and is not affected facility for EPA's NO_x SIP Call Phase II Regulation.

The NO_x SIP Call requires that the affected SRICE (Ref. M/L 1-11) reduce the ozone season NO_x emissions by 82% (2,163 ton/yr reduction) from the 1995 ozone season NO_x emissions. In 1995, the affected SRICES (Ref. M/L 1-11) emitted 2,892.1 tons of NO_x, with a 98% growth factor and an 82% reduction, these engines will be allowed to emit 474 tons of NO_x during the ozone season (see Attachment 1). The source has elected to use parametric monitoring, stack testing, annual portable analyzer testing, and tracking hours of operation, in order to calculate NO_x emissions, rather than continuous emissions monitoring to demonstrate compliance to the NO_x emissions limit.

IV. Regulatory Review

The NO_x SIP Call Rule (63 FR 57356, October 27, 1998 and 69 FR 21604, April 21, 2004), addresses the interstate transport of ozone. It requires twenty-one States and the District of Columbia to eliminate those amounts of NO_x emissions that contribute significantly to downwind nonattainment of the 1-hour ozone standard. Phase I of the Rule required a 90% reduction for all external combustion units, except specified electrical cogeneration units, with a heat input capacity greater than 250 MMBtus/hr. Phase II of the Rule requires a 90% reduction for existing electrical cogeneration units with heat input capacity greater than 250 MMBtus/hr and an 82% reduction for large stationary internal combustion engines. The compliance date for Phase II of the NO_x SIP Call is May 1, 2007, the start of the 2007 Ozone Season.

The intent of this State Operating Permit (SOP) is a source specific State Implementation Plan (SIP) Revision to make the NO_x reduction provisions of the EPA's NO_x SIP Call Phase II State and Federally enforceable. The draft SOP requires a public notice, a 30-day comment period, and a public hearing per 9 VAC 5-80-1020.

The permit limits the hourly and ozone season NO_x emissions from the affected engines (Ref. M/L 1-11). The permit does not limit the hours of operation of the affected engines (Ref. M/L 1-11). Details on the NO_x emissions can be found in Attachment 1.

V. Summary of Phase II NO_x SIP Call emissions

| | Ozone Season Projected NO_x Emission Rate (lb/hr) | Ozone Season Projected NO_x Emission Rate (ton/ozone season) | Potential Hours/season |
|---------------|--|---|-----------------------------------|
| Cooper M/L 1 | 19.29 | 35.4 | 3,672 |
| Cooper M/L 2 | 19.29 | 35.4 | 3,672 |
| Cooper M/L 3 | 19.29 | 35.4 | 3,672 |
| Cooper M/L 4 | 19.29 | 35.4 | 3,672 |
| Cooper M/L 5 | 19.29 | 35.4 | 3,672 |
| Cooper M/L 6 | 20.25 | 37.2 | 3,672 |
| Cooper M/L 7 | 20.25 | 37.2 | 3,672 |
| Cooper M/L 8 | 26.23 | 48.2 | 3,672 |
| Cooper M/L 9 | 26.23 | 48.2 | 3,672 |
| Cooper M/L 10 | 26.23 | 48.2 | 3,672 |
| Cooper M/L 11 | 42.44 | 77.9 | 3,672 |
| TOTAL | | 473.8 | |

VI. Boilerplate Deviations

The parametric monitoring program proposed by the source has been separated from the periodic monitoring program in this SOP. Some of the condition numbering in NO_x SIP Call template have been either revised or deleted for consistency.

VII. Compliance Demonstration

The permittee shall install the parametric monitoring system (PMS) to monitor the selected engine performance indicators prior to the start of the 2007 Ozone Season. The permittee will be required to perform an initial performance test (either 40 CFR 60, Method 7 or 7E) to verify the NO_x mass emission rate from each affected engine (Ref. M/L 1-11). The initial performance testing is to be completed and the results submitted to the South Central Regional Office before May 1, 2007. The permittee shall conduct a series of nine NO_x stack tests (engine mapping) using the portable analyzer on each affected engine (Ref. M/L 1-11) while monitoring critical engine operating parameters (PMS) in order to map the engine's emissions under various loads and to determine the value of the constants for the equation in Condition III.F.2. The permittee shall submit the testing protocols for approval to the South Central Regional Office 30-days prior to the test dates.

During normal operation, the actual air manifold pressure (AMP_{ACT}, inches Hg) for the affected engine is expected to be greater than the critical air manifold pressure (AMP_C, inches Hg) for the same affected engine. If any one-hour average of AMP_{ACT} of any affected engine (Ref. M/L 1-11) is less than the AMP_C for the same engine during the ozone season, the source shall report a deviation from normal operation. If the three (3) hour average AMP_{ACT} of any affected engine (Ref. M/L 1-11) is less than the AMP_C for the same engine, the source shall take timely corrective action such that the affected engine resumes normal operation. If the three (3) hour average AMP_{ACT} of any affect engine (Ref. M/L 1-11) is less than the AMP_C for the same engine for five (5) times during any ozone season, the permittee shall repeat the engine mapping testing to re-establish the correlation

between operating parameter levels that indicate proper operation of the affected engine and assure compliance with the NOx limit.

The source is also required to calibrate the portable analyzer in accordance to the provision of 40 CFR 60, Appendix A, Method 7E or approved alternative (i.e. CTM-030 or CTM-034), and maintain a logbook of the results of the calibration. Each affected engine is to be tested as normally operated, which means the engine is not be tuned or otherwise adjusted in any manner which reduces NOx emissions for during the testing and then retuned or readjusted to pretest conditions.

Once per ozone season, starting with the 2008 Ozone Season, the permittee shall test one affected engine (Ref. M/L 11) from each group with the portable analyzer to demonstrate the validity of the PMS and compliance to the Ozone Season NOx emission limits. The engines are grouped by size/type, with the five GMW-10 engines (Ref. M/L 1-5) comprising Group 01, the three GMWA-10 engines (Ref. M/L 6-8) comprising Group 02, and the two 10V-250 (Ref. M/L 9, 10) and the 16V-250 (Ref. M/L 11) comprising Group 03. The source is also required to submit a testing protocol to the South Central Regional Office for approval at least 30-days prior the scheduled test. The source is required to test each engine in the group during the ozone season before retesting an engine that completed annual testing.

VIII. Title V Review - 9 VAC 5 Chapter 80, Part II, Article 1

The Title V permit, effective January 12, 2004, does not limit criteria pollutant emissions. The applicable requirements of the NOx SIP Call Phase II Regulation will be incorporated into the Title V permit under separate cover.

IX. Other Considerations

None

X. Recommendations

It is recommended that this draft SOP be approved.

Attachments

Attachment 1